Antineoplastic 31-Norcycloartanones from Solanum cernuum Vell.

Rogério Grando\textsuperscript{a}, Marcia A. Antônio\textsuperscript{b}, Carlos E. P. Araújo\textsuperscript{b}, Catarina Soares\textsuperscript{c}, Maria A. Medeiros\textsuperscript{d}, João E. de Carvalho\textsuperscript{e}, Ana M. Lourenço\textsuperscript{c,\ast}, and Luciane C. Lopes\textsuperscript{a}

\textsuperscript{a} Faculdade de Farmácia da Universidade Metodista de Piracicaba, Rodovia do Açúcar Km 156, 13400-911 Taquaral, Piracicaba, SP, Brazil
\textsuperscript{b} Universidade de São Francisco, Av São Francisco Assis 218, Caixa Postal 163, 12916900 Bragança Paulista, SP, Brazil
\textsuperscript{c} REQUI/TE/CQFB, Departamento de Química, FCT, Universidade Nova de Lisboa, 2829-516 Caparica, Portugal. Fax: +35 12 12 94 85 50. E-mail: ana.lourenco@dq.fct.unl.pt
\textsuperscript{d} Instituto Nacional de Engenharia, Tecnologia e Inovação, Departamento de Tecnologia das Indústrias Químicas, Azinhaga dos Lameiros, 1699-038 Lisboa, Portugal
\textsuperscript{e} CPQBA – Centro Pluridisciplinar de Pesquisas Químicas, Biológicas e Agronômicas da Universidade de Campinas, UNICAMP, SP, Brazil

\ast Author for correspondence and reprint requests

Z. Naturforsch. 63c, 507–514 (2008); received January 18/March 3, 2008

Triterpenoids with 31-norcycloartanone structure were isolated for the first time from the Solanum genus. Cycloeucalenone and 24-oxo-31-norcycloartanone were the main constituents of the dichloromethane extract of Solanum cernuum Vell. leaves [7% (w/w) and 1.47% (w/w)]. Both triterpenoids were tested against human tumour cell lines, and 24-oxo-31-norcycloartanone was significantly active and selective against the lung tumour cell line NCI-H460 with total growth inhibition at 1.10 \(\mu\)g/mL, growth inhibition 50 at 0.19 \(\mu\)g/mL and lethal concentration 50 at 8.43 \(\mu\)g/mL, while cycloeucalenone showed poor activity. A homologous series of alkanes (C\textsubscript{25}–C\textsubscript{34}), \(\beta\)-sitosterol, and the xanthophyll lutein were also identified. The antiulcer activity was assayed for the dichloromethane extract. In the gastric ulcer model induced by 95% ethanol, administration of 500, 1000 and 2000 mg/kg po dichloromethane extract gave ulcer lesion indices of, respectively, 38.2, 61.0 and 81.9%, while carbenoxolone inhibited 88.9% at 200 mg/kg. In the gastric ulcer model induced by indomethacin the dichloromethane extract showed a small percentage of lesion inhibition. The ethanol extract was also analyzed and was mainly composed of glycoalkaloids, peptides and disaccharides.

Key words: Solanum cernuum Vell., 31-Norcycloartanones, Antineoplastic Activity